a base substrate at least partially composed of an insulating material and formed with at least one opening;

a barrier layer provided over said base substrate, said barrier layer including an oxygen-containing iridium layer and an oxygen barrier layer, said oxygen barrier layer being composed of one of iridium dioxide and ruthenium dioxide;

an adhesion layer disposed between said base substrate and said at least one barrier layer, said adhesion layer containing at least one material selected from the group consisting of zirconium, hafnium, cerium, vanadium, chromium, niobium, tantalum silicide nitride and tungsten silicide; and

a metal silicon layer disposed on said base substrate directly between said adhesive layer and said opening, causing a layer stack of said metal silicon layer, said adhesive layer and said oxygen-containing barrier layer to be formed above said opening.

Claim 2(amended). The microelectronic structure according to claim 1, wherein:

said at least one opening completely penetrates said insulating material; and

at least one conductive material fills said at least one opening.

Claim 4(amended). The microelectronic structure according to claim 1, wherein said insulating material is composed of one of silicon nitride and silicon oxide.

Claim 12(amended). The microelectronic structure according to claim 2, wherein:

said at least one conductive material is disposed in said at least one opening .

Claim 14(twice amended). The microelectronic structure according to claim 1, wherein said at least one metal silicide contains at least one silicide selected from the group consisting of yttrium silicide, titanium silicide, zirconium silicide, hafnium silicide, vanadium silicide, niobium silicide, chromium silicide, iron silicide, cobalt silicide, palladium silicide, platinum silicide and copper silicide.